

Dynamics of Agricultural Competitiveness: Policy Lessons From Abroad

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Whether from the perspective of an individual enterprise or a broader economic sector, such as agriculture, maintaining "competitiveness" is an unceasing concern. To assess competitiveness, observers often refer to changes in market share, exports, and profitability—but ultimately, the competitiveness of a nation's product is rooted not in any single outward measure, but in

the quantity and quality of the country's productive resources. These are the factors that determine the relative efficiency of making different goods and, consequently, a country's "comparative advantage" in international trade (see box, p.16).

To many, the idea that comparative advantage depends on relative resource endowments conveys the sense that nations

have little control over their economic destinies, at least in international trade.

This is not entirely true. As ERS research on agriculture in South America, the former Soviet Union, and China reveals, government policies, national institutions, and even cultural values can profoundly affect the overall productivity of a country's existing resources, and have



Soybean field in Brazil's frontier state of Mato Grosso. Photo by Rao Achutuni, USDA/FAS

important implications for international agricultural markets. When significant policy changes are made, the result can be rapid changes in the competitiveness of a nation's agricultural products.

The spectacular growth of agricultural sectors in Brazil and Argentina in the past decade, for instance, can be largely attributed to important macroeconomic reforms

implemented by the two countries in the early and mid-1990s. In contrast, agricultural production in Russia and Ukraine slumped following the dissolution of the Soviet Union in 1992, largely due to the loss of heavy subsidies and because the poor institutional environment discouraged investment. In China, a slower pace of reform and longstanding self-sufficiency

policies have delayed the country's transition from land-intensive grains production to labor-intensive goods, such as vegetables, where it has a comparative advantage. Developments in these three regions highlight the way policies interact with existing resource endowments to reinforce, or undermine, underlying economic strengths.

A Country Can't Be Competitive in Everything

During the 1980s, "competitiveness" became a national buzzword, with economists, business people, and politicians alike asking, "Can America compete?" However, as some observers eventually pointed out, discussions about national competitiveness are somewhat misguided. A trade deficit, for example, does not necessarily mean living standards are declining, and uncompetitive nations, unlike corporations, do not go out of business. It also makes little economic sense to promote exports that can be sold only at a loss. A more appropriate discussion of competitiveness would center on specific industry groups within a nation and the factors that drive their success.

At the same time, it is important that a country make the best overall use of its resources. To fully exploit its "comparative advantage," a country should produce and export goods that reflect the relative abundance, and quality, of its land, labor, and capital resources. A densely populated country, for example, would tend to produce and export goods requiring labor-intensive production practices (such as vegetables or textiles), while a country with a large land base would tend to produce land-intensive goods (such as grains).

Government policies affect competitiveness insofar as they can change the overall productivity of existing resources, and allow resources to flow into the production of goods that reflect the nation's comparative advantage. For example, policymakers can act to improve the quality of the labor force (through education), to create a macroeconomic environment favorable to investments in infrastructure and equipment, and to establish legal institutions, such as well-defined property rights, that encourage entrepreneurship and optimal resource allocation.

Countries at a glance (2000)

Item	Unit	Argentina	Brazil	China	Russia	Ukraine	United States
Population	Million	37	170	1,282	145	50	283
Agricultural workers ¹	Million	1.5	13.2	510.8	8.2	3.6	3.0
Total area	Million acres	687	2,111	2,370	4,218	149	2,378
Cropland ²	Million acres	62	130	306	309	80	437
Cropland per agricultural worker	Acres	41.3	9.8	0.6	37.7	22.2	145.7
Harvesters-threshers and tractors in use	1,000	330	860	1,041	985	384	5,462
Value of agricultural production ³	\$ Billion	13	64	173	26	5	194
Agricultural exports ⁴	\$ Billion	10.8	12.8	13.1	1.1	1.7	56.5
Agricultural imports ⁴	\$ Billion	1.3	4.3	15.4	7.2	1.0	44.9

¹Total economically active population in agriculture (Food and Agriculture Organization of the United Nations).

²Cropland including nonpermanent pasture and fallow. Does not indicate amount of land potentially cultivable (Food and Agriculture Organization of the United Nations).

³For countries other than the U.S., agricultural value-added, 1999 (World Development Indicators; calculated by ERS).

⁴Crops and livestock, primary and processed, calendar year (Food and Agriculture Organization of the United Nations).

Brazil and Argentina Show the Way

With a combined total land area greater than that of the United States, fertile soils, and a favorable climate, Brazil and Argentina have long had an inherent advantage in producing land-intensive grains and pasture-fed livestock. During much of the last half century, though, agricultural productivity and area growth were

impeded by periodic bouts of hyperinflation, import-substitution policies, export taxes, and other policies that created uncertainty, blunted investment and production incentives, and kept transportation and marketing costs high.

The two countries' agricultural sectors clearly benefited from policy reforms, initiated first by Argentina in the early 1990s and then by Brazil in the middle part of the

decade. Until recent setbacks, these reforms created economic stability, reduced trade restrictions, stimulated investment in the sector, and more fully revealed their comparative advantage in crop production.

The results were spectacular and, to their competitors, alarming. Already significant producers and exporters of soybeans and soybean byproducts, Brazil and

Argentina nearly tripled their combined soybean production from under 30 million tons during 1989-91 to an estimated 86 million tons in 2002—and now account for more than half of global exports. This growth was accompanied by healthy production gains for many other crops and livestock products as well. Argentine wheat and corn production grew by 50 and 85 percent, respectively, between 1989-91 and 2001, and Brazilian corn production expanded by 40 percent. Poultry production in each country more than doubled, as did Brazilian pork production.

Reforms in the two countries shared many common elements, including currency reform designed to restrain inflation, deregulation, and the curtailment of export taxes and import tariffs. During the 1980s, annual inflation in Argentina and Brazil consistently exceeded 100 percent and surpassed 1,000 percent on several occasions, but inflation was quickly dampened after Argentina (in 1991) and Brazil (in 1994) linked their currencies to the U.S. dollar. With reduced inflation, lenders faced less risk, borrowing costs fell, and longer term investments became more attractive.

Along with improved credit, reduced import barriers spurred greater use of agricultural inputs, such as fertilizers and machinery. Argentina dropped tariffs on agricultural inputs to 15 percent in 1991, one-quarter the rate prevailing during the 1970s, and Brazil cut average import tariffs in half between 1989 and 1991, to 20 percent. As a result, the countries' combined imports of agricultural machinery grew from less than \$40 million annually in the early 1990s to a peak of nearly \$530 million in 1998. The greater availability of advanced technologies and imported inputs aided productivity growth in both countries.

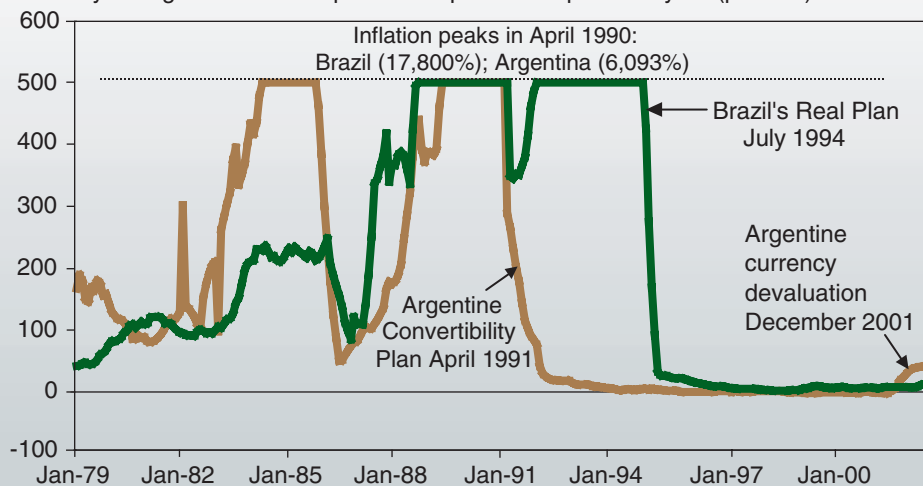


Photo by Rao Achutani, USDA/FAS

Expensive trucking operations are still a common way of transporting agricultural products in Brazil and Argentina.

Currency reforms in the 1990s helped Argentina and Brazil stem inflation and stabilize their economies

Monthly change in consumer prices compared with previous year (percent)*



* Scale capped at 500 percent to facilitate presentation.

Source: International Monetary Fund (through December 2002).

Like many other lower and middle-income countries, Brazil and Argentina also had a legacy of export taxes that placed a drag on agricultural production and exports. At one point in the early

1990s, Argentina taxed soybean exports at over 40 percent. These taxes, combined with regulated marketing systems and inefficient port operations, added an average of \$70 per ton to the cost of exporting

soybeans during the 1980s—more than one-quarter the export price. Following privatization and reduced export taxes in the early 1990s, these costs fell to just over \$10 per ton.

One of the greatest challenges facing the two countries is to improve their marketing and transportation infrastructures. In the past decade, private and public investments have improved rail and highway systems and opened up new production areas in Argentina's northeast and Brazil's Center-West region, where the availability of nearly 150 million acres of potential cropland provides ample expansion opportunity. Despite improvements, though, transportation costs from main production regions in Brazil and Argentina to ports remain two to three times higher than in the United States.

Unfortunately for Brazil and Argentina, the relative macroeconomic stability they enjoyed may have been transitory, and their recent economic woes (most notably Argentina's default on public debt) threaten to undermine progress. Reflecting this instability, the Brazilian currency (real) has dropped by more than 60 percent against the dollar since January 1999. The Argentine peso fell from parity with the dollar in December 2001 to 3.3 pesos per dollar in January 2003. On the surface, the currency devaluations will make their export-oriented agriculture sectors more competitive. However, it should be recalled that their agricultural sectors thrived during the 1990s despite generally overvalued currencies. In Argentina in particular, it is more likely that growth in agriculture will suffer from tighter credit conditions, higher input prices, and the re-imposition of export taxes on agricultural goods.

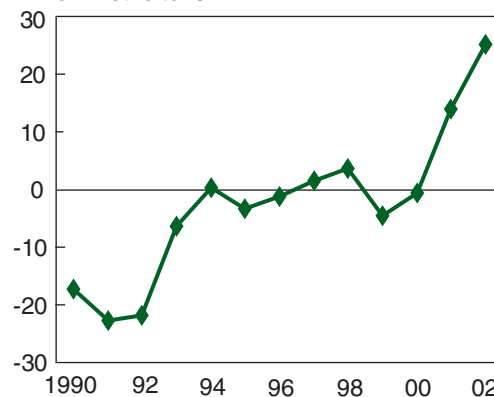
Russia and Ukraine: Two Steps Back and One Step Forward?

Like Brazil and Argentina, Russia and Ukraine are endowed with vast stretches of fertile land, particularly in the Black Soil regions bordering the Black Sea, giving them a seemingly strong comparative advantage in grain production. However, in contrast to Brazil and Argentina, agricultural production in Russia and Ukraine declined drastically in the 1990s following the dissolution of the Soviet Union. Grain (wheat and coarse grains) production dropped 46 percent between 1988-90 and 1998-2000, and the livestock sector suffered even greater declines. Much of the decline can be tied to the initial elimination of direct and indirect subsidies to the agricultural sector. The main ongoing problem, however, has been the failure to fully implement institutional reforms, such as bankruptcy laws for agricultural enterprises and land codes establishing well-defined property rights. Without effective reforms in these areas, investment incentives in the agricultural sector are limited and potential productivity growth is constrained.

Before the collapse of the Soviet Union in 1992, agricultural production in the USSR was hugely inefficient and relied on heavy subsidies—estimated at 11 percent of GDP—to maintain production. These subsidies were suddenly removed and, as expected, agricultural production initially fell. Many analysts projected that production would recover as market-oriented farmers became more efficient. In fact, total factor productivity of agriculture in Russia and Ukraine actually fell between 1993 and 1998, and production continued

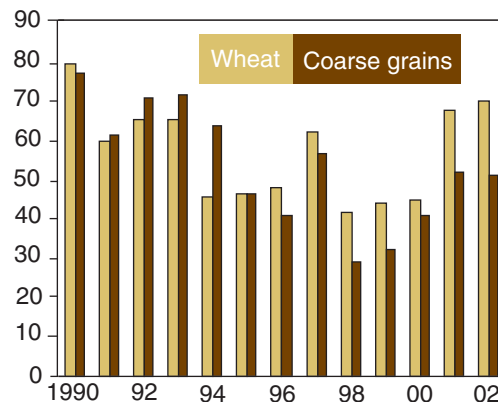
Soaring net grain exports by Russia and Ukraine...

Million metric tons



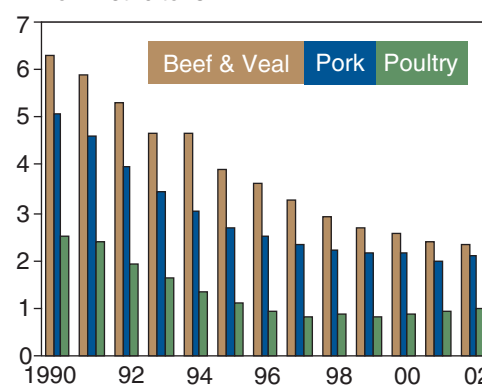
... reflect rebounding grain production...

Million metric tons



... and continued decline of meat production

Million metric tons



Source: Production, Supply, and Distribution database (March 2003), Foreign Agricultural Service, USDA.

to fall throughout the 1990s. Despite the decline, Russia and Ukraine shifted from being major importers of about 22 million tons of grain in 1992 to net exporters of about 2 million tons in 1998, reflecting the large drop in livestock numbers and consequent loss of domestic demand for feed grains.

Recent good harvests and growing net grain exports—estimated at an unprecedented 25.1 million tons for the 2002/03 marketing year—have caught the attention of international markets and suggest to some observers that agricultural productivity may finally be responding to market reforms. Improved production and increased exports, however, are more likely the result of good weather over the past 2 years, rather than increased efficiency or new investment. To bring about a true improvement in agricultural productivity, Russia and Ukraine will have to replace

wornout machinery and implement appropriate production practices.

Unfortunately, a number of entrenched institutional problems make investment in the two countries' agricultural sectors problematic. For example, in 1998, more than 80 percent of the large corporate farms in Russia were not profitable, but very few agricultural enterprises went bankrupt, thus tying up resources in inefficient farms. In addition, a prohibition on using land for collateral limited the liquidity of the agricultural sector, and the existing system of commercial law still does not protect investors from appropriation by government officials or organized crime. Profitable investments are particularly vulnerable to overly aggressive tax collectors, and unclear rules allow officials too much individual discretion in deciding whether an investor is complying with tax laws.

Recent legislation has addressed some of these institutional problems. The tax code passed by Russia in 2001 has clarified tax laws, and recent court system reforms should help improve property rights. Most interestingly, Russia passed a land code in 2002 that now allows agricultural land to be used as collateral. Ukraine also passed a land code allowing land to be used as collateral and bought and sold beginning in 2005. The land codes, however, will not significantly affect investment if other institutional reforms fail to create a functioning credit market or allow agricultural enterprises to go bankrupt.

The next few years will reveal whether recent legislation has indeed created a favorable environment for investment in agriculture in Russia and Ukraine. ERS research shows that, if the new laws are successful, the 25.1 million tons of net exports expected from Russia and Ukraine in 2002 could become more common. In

Producers in Russia and Ukraine are phasing out aging Soviet-era technology, such as this combine, in favor of smaller scale equipment.



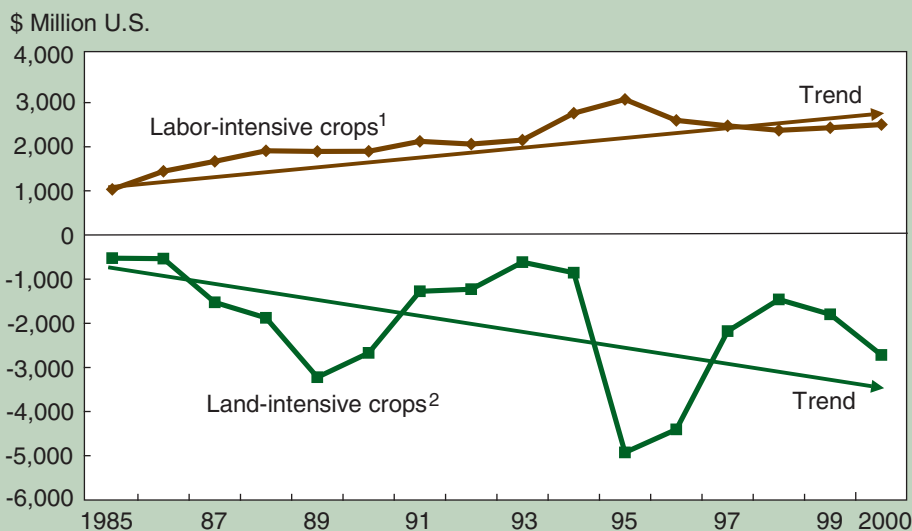
Photo by Mark Lindeman, USDA/FAS

that case, the competitiveness of their agricultural products will have been enhanced by resolving institutional problems.

China Slowly Changes Direction

As one of the world's leading agricultural economies, China is destined to remain both a market and a competitor for U.S. agricultural exports. China has roughly 40 percent of the world's farmers and only 9 percent of the world's agricultural land. Consequently, its comparative advantage clearly lies in labor-intensive products, such as fruits and vegetables, a fact that tantalizes potential exporters of land-intensive crops to China. In particular, land-intensive grain production is not well suited to China's limited arable land base, and this is especially true of irrigated wheat production in north China, where water supplies are diminishing. In contrast, China's labor-intensive vegetable, fruit, and livestock industries are cost-competitive not only in the domestic market but also overseas. China is already a net exporter of these goods and a net importer of land-intensive crops. But, for a number of reasons—often based on long-held cultural values—China has been reluctant to move away from the produc-

Net exports of labor- and land-intensive crops increasingly reflect China's comparative advantage



Source: Food and Agriculture Organization, United Nations (January 2003).

tion of land-intensive grains and more fully exploit its comparative advantage in other agricultural products (see, in this issue, "Will Water Scarcity Limit China's Agricultural Potential?" and "China Slow in Meeting WTO Commitments").

One reason is that many Chinese farmers still operate at the subsistence level, with roughly 70 percent of total grain production consumed by the household

that produces it. Since staple grains are a major portion of household consumption, it is natural that subsistence farmers continue to produce these grains. In addition to subsistence production patterns, many policies bias agriculture in China toward food self-sufficiency. For centuries, China's leaders have sought to maintain large grain stocks to guard against famines, which have led to peasant rebellions. China has also historically considered foreign trade unnecessary, so it has a natural inclination to produce its own grain. Current policy seeks to maintain at least 95 percent grain self-sufficiency, a goal it has more than achieved in the last few years.

To support its self-sufficiency goals, China has maintained tight control over agricultural trade, and until very recently, state-owned trading enterprises held absolute monopolies on the trade of many agricultural commodities, including staple grains. Under this system, China issued licenses authorizing fixed levels of imports and exports of agricultural commodities based on annual production and consumption projections. The political



Farmers in China are slowly shifting from production of subsistence grains to high-value fruits and vegetables for domestic and overseas markets.

Photo by Ron Marlow, USDA/NRCS



Photo by Fred Gale, USDA/ERS

Unlike in Russia, farmers in China use labor-intensive techniques and farming is not heavily mechanized.

process that set these quotas sometimes prevented importers and exporters from responding to market incentives when world and domestic prices differed.

A variety of local-level policies, such as land tenure and "grain quota" delivery policies, affect the production decisions of farmers as well, albeit in more subtle ways than the state trading monopolies. Farmland in China is usually controlled by the village government, and local officials allocate farmland to village households, often on a per capita basis. In exchange, households are obligated to deliver a fixed amount of grain to the state grain bureaus, generally below the market price. Since local leaders are evaluated by their success at increasing grain production, farmers generally had to produce grain on the land allocated to them rather than produce higher valued crops (vegetables, for example).

The policies that have promoted grain cultivation are being reformed to allow market forces to guide production and trade decisions. For example, with China's accession to the World Trade Organization in 2001, monopolized imports have been replaced with a sys-

tem of tariff-rate quotas that explicitly undermine the control of state-trading enterprises. China is also reforming its land tenure system and granting farmers longer lease rights, written contracts, and greater rights to transfer land between households—providing farmers with greater flexibility to choose crops and more incentive to invest in the land. Many provinces are no longer enforcing grain quota deliveries, and private traders are handling a larger portion of internal grain trade. These policy reforms, along with market infrastructure investments, are expected to facilitate a shift in China's agricultural production away from grains and toward production of more labor-intensive products.

Comparative Advantage, Competitiveness, and Policy Are Intertwined

The competitiveness of a nation's product in international markets is clearly related to the relative quantity (and quality) of resources available to that country. At the same time, production and trade flows are also sensitive to policies, institutions, and even cultural values. According to ERS research:

- Brazil and Argentina were better able to respond to international market signals and quickly expand exports of grain and livestock products once macroeconomic conditions stabilized.
- Russia's and Ukraine's failure to establish institutions—such as property rights laws and tax codes—hampered the transition from a heavily subsidized to a market-oriented agricultural system.
- China still adheres to policies that maintain production of grains that could be imported in exchange for crops in which it has a comparative advantage, such as fruits and vegetables.

These three examples demonstrate that policymakers are responsible for ensuring that the conditions and institutions that allow markets to function smoothly are in place. Only then will markets draw a nation's resources to the production of goods that reflect its underlying comparative advantage.

This article is drawn from ...

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